AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
MECHANICAL ENGINEERING DEPARTMENT
3^{rd} Year Production

Marketing

Pricing

Question 1

A company produces a certain product. The total fixed cost incurred by the company $4,800,000. The variable cost is $600 per unit and the selling price is $1000 per unit.

a) What are the numbers of units that must be sold to achieve $1,000.000 as profit?
b) Determine the breakeven point and the margin of safety to show how much you safe and gain profit.

Question 2

A workshop manufactures and sells three products A, B and C. The cost and sales figures as reported by the cost accounting department are shown in the table below

	Selling Price [$/unit]	**Variable Cost [$/unit]**	**Production Quantities [units]**
A	40	30	2000
B	50	40	1500
C	70	50	3000

The annual fixed cost is $ 2 Million. Determine the breakeven point for each product.

Question 3

A company has developed a new product. The company requires a return on invested capital of 30% per annual. The sales price should be set using a target return on investment method.

The total investment to produce the product is as follows:

Investment in new machinery	$1,000,000
Research and development R&D	$200,000

The following additional information has been provided:

Depreciation in new machinery is carried out over 5 years.

Administration expenses	$100,000
Marketing expenses	$50,000
Other overheads	$200,000
Material cost per unit	$200
Labor cost per unit	$50

Calculate the selling price per unit if you know that the budgeted sales volume is 25,000 units.

Question 4

Consider a business for producing a single product of 100,000 units with the following costs:

Net sales	**$4,000,000**
Fixed costs	
Factory production cost	$200,000
Administration and other overheads	$150,000
Manufacturing overheads	$40,000
Advertising	$10,000
Variable cost	
Direct material	$1,000,000
Direct labor	$550,000
Manager bonus (1.25% of sales)	$50,000

a) Calculate the breakeven sales level.
b) What would be the required sales volume to generate a profit of $3,000,000?

Question 5

Consider a business with the following costs and volumes for a single product:

Net sales	**$4,000,000**
Fixed costs	
Factory production cost	$200,000
Administration and other overheads	$150,000
Manufacturing overheads	$40,000
Advertising	$10,000
Variable cost	
Direct material	$1,000,000
Direct labor	$550,000
Manager bonus (1.25% of sales)	$50,000

a) Calculate the breakeven sales level.
b) Calculate the 25% target ROS level.
c) If you decide to add an assistance store manager at a cost of $30,000, this would allow you to keep the store open longer and increase your sales by $30,000. Do you accept? What is the estimated net change in contribution in this case?
d) If you decide to close down, then you will no longer advertise, pay a salary to your manager or pay your manufacturing overhead. Calculate the shutdown sales level.